VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The proposed discharge will result from the operation of a sewage treatment plant (SIC Code: 4952 - Sewerage Systems). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
   Camp Overlook STP
   3014 Camp Overlook Lane
   Keezletown, VA 22832
   Location: 3014 Camp Overlook Lane

2. Permit No. VA0083305; Expiration Date: March 31, 2016

3. Owner: Camp Overlook, Inc.
   Contact Name: Mr. Ronald K. Robey
   Title: Executive Director
   Telephone No: 540.269.2267
   Email: campoverlook@gmail.com

4. Description of Treatment Works Treating Domestic Sewage:
   Total Number of Outfalls: 1

   Wastewater is primarily generated from the church camp restroom, bathing, and food preparation facilities. The treatment facility is an extended aeration activated sludge treatment process. Treatment includes influent screening, flow equalization, activated sludge digestion, clarification, chlorination, dechlorination, post aeration, and aerobic sludge digestion.

   Average Discharge Flow (October 2013 – September 2015) = 0.0082 MGD
   Design Average Flow = 0.03 MGD

5. Application Complete Date: September 28, 2015

   Permit Writer: Dawn Jeffries Date: November 16, 2015
   Reviewed By: Bev Carver Date: November 17, 2015

   Public Comment Period: xx to xx

6. Receiving Stream Name: Mountain Run
   River Mile: 1.6
   Use Impairment: Yes
   Special Standards: pH, PWS
   Tidal Waters: No
   Watershed Name: VAV-B47R Smith Creek
   Basin: Potomac; Subbasin: Shenandoah
   Section: 6e; Class: IV

7. Operator License Requirements per 9VAC25-31-200.C: Class IV (assigned July 5, 2005 by DEQ CSO)

8. Reliability Class per 9VAC25-790: Class: II (assigned December 10, 1985)

9. Permit Characterization:
   ☑ Private ☐ Federal ☐ State ☐ POTW ☐ PVOTW
   ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: Appendix A

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:
    Tier Designation: Tier 1

    The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

    The AD review begins with a Tier determination. Mountain Run in the discharge location is determined to be Tier 1 because the stream does not meet the General Standard (Benthics) for aquatic life use. AD baselines are not calculated for Tier 1 waters.

12. Site Inspection: Performed by Lisa Kelly on August 27, 2015

13. Effluent Screening and Effluent Limitations: Appendix B

14. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☐Yes ☑ No
    This STP has a design flow < 1.0 MGD, has no Significant Industrial Users (SIUs) or Categorical Industrial Users (CIUs), and is not deemed to have the potential to cause or contribute to instream toxicity.

15. Sewage sludge is stored in the aerobic digester and is periodically pumped out and hauled to the North River WWTF for treatment and disposal. The VPDES Permit application serves as the Sludge Management Plan and is approved with the reissuance of the permit.

16. Bases for Special Conditions: Appendix C

17. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9VAC25-31-220.D: Mountain Run in the vicinity of the discharge is listed as not meeting the General Standard for aquatic life use due to a documented benthic impairment. This section of stream is also listed as having elevated levels of coliform bacteria. A TMDL addressing these impairments includes the following WLAs for this discharge:

    E. coli 5.22×10^{10} cfu/yr (based on a design flow of 0.03 MGD and a concentration of 126 cfu/100mL)
    Sediment 4,112 lbs/yr (based on a design flow of 0.03 MGD and a TSS concentration of 45 mg/L)

    The permit contains a re-opener condition that may allow the permit limits to be modified, in compliance with section 303(d)(4) of the Act once a TMDL is approved.

20. Regulation of Users per 9VAC25-31-280.B.9: N/A – There are no industrial discharges to the treatment works.

21. Stormwater Management per 9VAC25-31-120: Application Required? ☐ Yes ☑ No
This STP does not have a design flow ≥ 1.0 MGD, nor is it required to have an approved POTW pretreatment program under 9VAC25-31-10 et seq.

22. Compliance Schedule per 9VAC25-31-250: No compliance schedule is included in the reissued permit.

23. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.K, and 100.N: The applicant requested a waiver for EPA Form 2A testing for temperature and fecal coliform. Justification for the waivers was adequate.

24. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility does not serve any permanent residences.

25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

26. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
General Permit Required: ☐ Yes ☑ No
This facility is not required to maintain coverage under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen (TN) and Total Phosphorus (TP) Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) because it is not listed with a WLA in the Registration List in 9VAC25-820-70; nor does the permit authorize expansion to 0.040 MGD or more (or an equivalent industrial load) that is subject to an offset or technology-based requirement; nor it is a new treatment works permitted to discharge more than 1,000 gpd and less than 39,999 gpd and had not commenced the discharge prior to January 1, 2011.

27. Nutrient monitoring included per Guidance Memo No. 14-2011: ☑ Yes ☐ No

    This facility is a Nonsignificant Discharger (all facilities not classified as Significant Dischargers as defined in the Nutrient Trading Watershed General Permit Regulation 9VAC25-820). Effluent sampling for TN and TP has not previously been completed and therefore has been included in the permit.

28. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on October 13, 2015 through DCR based upon request. Comments were received from DCR on November 10, 2015 and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee.

29. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Dawn Jeffries at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7898, dawn.jeffries@deq.virginia.gov.

    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public

hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

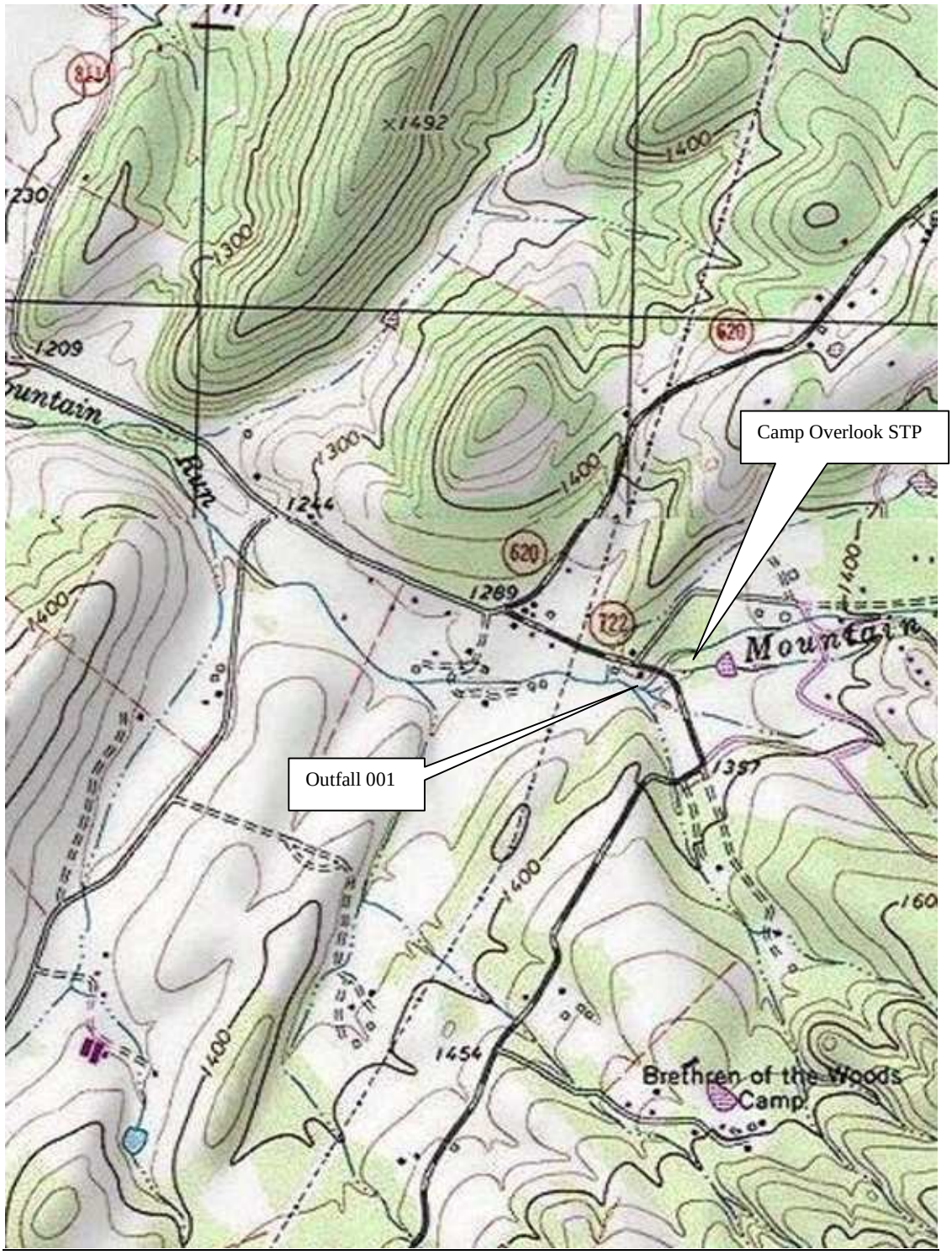
30. Historical Record:

4/15/91	VPDES permit issued, Design Flow = 0.03 MGD
7/13/93	Original CTO issuance for STP lagoon

APPENDIX A

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

Camp Overlook STP discharges to Mountain Run in Rockingham County near Oakwood, VA. The topographical map below shows the location of the treatment facility and Outfall 001.



PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW
POTOMAC-SHENANDOAH RIVER BASIN
10/7/2015

IMPAIRED SEGMENTS

SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER
B47R-01-BEN	Fridley Run	2.39	0.00	2.39	Benthic
B47R-01-PH	Fridley Run	2.39	0.00	2.39	pH
B47R-02-BAC	Mountain Run/Smith Cr./War Br.	5.98, 35.00, 6.81	0.00, 0.00, 6.81	5.98, 35.00, 6.81	E-coli
B47R-03-BEN	Lacey Spring	0.58	0.00	0.58	Benthic
B47R-04-BEN	Mountain Run	5.98	0.00	5.98	Benthic
B47R-05-BEN	Smith Creek	25.19	0.00	25.19	Benthic
B47R-06-BAC	Dry Fork	10.06	0.00	10.06	Fecal Coliform
B47R-07-BEN	Dry Fork	10.06	0.00	10.06	Benthic

PERMITS

PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0083305	Camp Overlook	Mountain Run	1.6	382948	0784347	VAV-B47R
VA0077399	Lacey Spring Elementary School	Smith Creek X Trib	0.19	383225	0784550	VAV-B47R
VA0088994	Mountain Valley KOA	War Branch	4.45	383208	0784227	VAV-B47R
VA0090794	Mauzy Liberty	Smith Creek	23.18	383325	0784355	VAV-B47R

MONITORING STATIONS

STREAM	NAME	RIVER MILE	RECORD	LAT	LONG
Dry Fork	1BDFK000.76	0.76	5/11/2001	383202	0784544
Fridley Run	1BFDY000.02	0.02	6/30/2003	382937	0784209
Lacey Springs	1BLAC000.14	0.14	8/8/2000	383231	0784545
Mountain Run	1BMTR000.93	0.93	6/30/2003	382958	0784422
Smith Creek	1BSMT018.40	18.4	3/3/1970	383518	0784207
Smith Creek	1BSMT019.26	19.26	1/22/2009	383518	0784207
Smith Creek	1BSMT023.18	23.1	7/1/1991	383326	0784356
Smith Creek	1BSMT025.58	25.58		383221	0784532
Smith Creek	1BSMT025.82	25.82		380313	0791515
Smith Creek	1BSMT023.58	23.58		383218	0784503
Smith Creek	1BSMT026.41	26.41	2/11/2009	383218	0784503
Smith Creek	1BSMT028.00	28	5/16/2001	383128	0784458
Smith Creek	1BSMT031.69	31.69	5/16/2001	382947	0784525
War Branch	1BWAR003.88	3.88	8/3/2005	383255	0784211
Dry Fork	1BDFK003.82	3.82	11/17/2003	383010	0784809
Dry Fork	1BDFK004.03	4.03	11/17/2003	383005	0784819

PUBLIC WATER SUPPLY INTAKES

OWNER	STREAM	RIVER MILE
New Market	Smith Creek	13.46

WATER QUALITY MANAGEMENT PLANNING REGULATION

Is this discharge addressed in the WQMP regulation? No

If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?

PARAMETER	ALLOCATION

WATERSHED NAME

VAV-B47R Smith Creek

FLOW FREQUENCY DETERMINATION

The DEQ has operated a continuous record gage on Smith Creek near New Market, VA (#01632900) since 1961. The gage is located at the Route 620 bridge north of New Market, Va. The flows measured by the gage are significantly impacted by Lacey Spring. The spring was measured by USGS 8 times between 2012 and 2014. The spring flow measurements were used to determine the percentage of flow at the New Market gage that is attributable to the spring. The average percentage (22%) was then multiplied by the flow frequencies for the reference gage, and the resulting values were subtracted from the reference gage flow frequencies to determine the flow without the spring contribution. The flow frequencies for the reference gage (without the spring contribution) were then used in a drainage area comparison to determine the flow frequencies at the discharge point.

Smith Creek near New Market, VA (#01632900):

Drainage Area = 93.6 mi^2

1Q30 =	5.02 cfs	High Flow 1Q10 =	13.5 cfs
1Q10 =	6.80 cfs	High Flow 7Q10 =	15.3 cfs
7Q10 =	7.46 cfs	High Flow 30Q10 =	18.4 cfs
30Q10 =	8.69 cfs	HM =	31.3 cfs
30Q5 =	10.6 cfs		

Smith Creek (#01632900) minus Lacey Spring contribution (22%):

Lacey Spring Drainage Area = 0.47 mi^2

Drainage Area = 92.73 mi^2

1Q30 =	3.88 cfs	High Flow 1Q10 =	10.4 cfs
1Q10 =	5.25 cfs	High Flow 7Q10 =	11.8 cfs
7Q10 =	5.76 cfs	High Flow 30Q10 =	14.2 cfs
30Q10 =	6.72 cfs	HM =	24.2 cfs
30Q5 =	8.19 cfs		

Mountain Run at discharge point:

Drainage Area = 2.46 mi^2

1Q30 =	0.010 cfs	(0.066 mgd)	High Flow 1Q10 =	0.28 cfs	(0.18 mgd)
1Q10 =	0.14 cfs	(0.090 mgd)	High Flow 7Q10 =	0.31 cfs	(0.20 mgd)
7Q10 =	0.15 cfs	(0.099 mgd)	High Flow 30Q10 =	0.38 cfs	(0.24 mgd)
30Q10 =	0.18 cfs	(0.12 mgd)	HM =	0.64 cfs	(0.41 mgd)
30Q5 =	0.22 cfs	(0.14 mgd)			

The high flow months are January through May.

The analysis assumes that there are no significant discharges, withdrawals, or springs that may influence the flow in Mountain Run upstream of the discharge point.

Reviewer: BWC
Date: 11.17.15

EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

DESIGN FLOW = 0.03 MGD, ANNUAL	DESIGN FLOW = 0.03 MGD, JAN-MAY
Effluent Flow = 0.03 MGD Stream 7Q10 = 0.099 MGD Stream 30Q10 = 0.12 MGD Stream 1Q10 = 0.090 MGD Stream slope = 0.016 ft/ft Stream width = 2.4 ft Bottom scale = 3 Channel scale = 1 ---------- Mixing Zone Predictions @ 7Q10 Depth = .1718 ft Length = 21.83 ft Velocity = .4843 ft/sec Residence Time = .0005 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used. ---------- Mixing Zone Predictions @ 30Q10 Depth = .189 ft Length = 20. ft Velocity = .5118 ft/sec Residence Time = .0005 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used. ---------- Mixing Zone Predictions @ 1Q10 Depth = .1641 ft Length = 22.76 ft Velocity = .4715 ft/sec Residence Time = .0134 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.	Effluent Flow = 0.03 MGD Stream 7Q10 = 0.20 MGD Stream 30Q10 = 0.24 MGD Stream 1Q10 = 0.18 MGD Stream slope = 0.016 ft/ft Stream width = 3.8 ft Bottom scale = 3 Channel scale = 1 ---------- Mixing Zone Predictions @ 7Q10 Depth = .1813 ft Length = 53.85 ft Velocity = .5167 ft/sec Residence Time = .0012 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used. ---------- Mixing Zone Predictions @ 30Q10 Depth = .2004 ft Length = 49.24 ft Velocity = .5488 ft/sec Residence Time = .001 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used. ---------- Mixing Zone Predictions @ 1Q10 Depth = .1714 ft Length = 56.6 ft Velocity = .4991 ft/sec Residence Time = .0315 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001 **Final Limits** **Design Flow: 0.03 MGD**

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		1/Day	Estimate
---	---	Monthly Average		Weekly Average		---	---
BOD_5	2,3,4	30 mg/L	3.4 kg/d	45 mg/L	5.1 kg/d	1/Month	Grab
TSS	2,5	30 mg/L	3.4 kg/d	45 mg/L	5.1 kg/d	1/Month	Grab
Ammonia-N (Jun-Dec)(mg/L)	3	15		15		1/Month	Grab
Effluent Chlorine (TRC)(mg/L)*	3	0.034		0.042		1/Day	Grab
E. coli (N/100 mL) (geometric mean)	3,5	126		NA		4/Month* or 4/Month in any month of each calendar year** 10 am to 4 pm	Grab
---	---	Minimum		Maximum		---	---
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Dissolved Oxygen (mg/L)	3,4	6.2		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,6	1.5		NA		1/Day	Grab
TKN (mg/L)	7	NA		NL		1/Year	Grab
Nitrite-N + Nitrate-N (mg/L)	7	NA		NL		1/Year	Grab
Total Nitrogen (mg/L)	7	NA		NL		1/Year	Calculated
Total Phosphorus (mg/L)	7	NA		NL		1/Year	Grab

Refer to permit for definitions of monitoring frequencies and sample types
** Applicable only when chlorination is used for disinfection*
*** Applicable if an alternative to chlorination is used for disinfection*

BASIS DESCRIPTIONS

1. *VPDES Permit Regulation (9VAC25-31)*
2. *Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)*
3. *Water Quality Standards (9VAC25-260)*
4. *Regional Stream Model*
5. *Smith Creek TMDL Report*
6. *Best Professional Judgment (BPJ)*
7. *Guidance Memo No. 14-2011*

LIMITING FACTORS – OVERVIEW:
The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	**TSS, E. coli**
B. Non-TMDL WLAs	**None**
C. CBP (TN & TP) WLAs	**None**
Federal Effluent Guidelines	**BOD_5, TSS, pH**
BPJ/Agency Guidance limits	**TRC (contact), TN, TP, Nitrite-N + Nitrate-N, TKN, DO**
Water Quality-based Limits - numeric	**BOD_5, DO, TRC (effluent), E. coli, pH, Ammonia-N**
Water Quality-based Limits - narrative	**None**
Technology-based Limits (9VAC25-40-70)	**None**
Whole Effluent Toxicity (WET)	**None**
Storm Water Limits	**None**

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS:
The stream model for this facility was updated at this reissuance to reflect current stream conditions. The model is maintained in the DEQ-Valley Regional Office and is available for review upon request.

Based on the Regional Stream Model, it was determined that the following values remain protective of WQS for DO:

$CBOD_5$ = 25 mg/L
TKN = 20 mg/L
DO = 6.2 mg/L

Because a $CBOD_5$ concentration of 25 mg/L is equivalent to a BOD_5 concentration of 30 mg/L per 40 CFR 133.102, a BOD_5 permit limit of 30 mg/L has been carried forward from the previous permit.

Based on the model, it was determined that no TKN limits were needed because a sewage treatment plant is not expected to discharge effluent with TKN concentrations greater than 20 mg/L.

The DO limits have been carried forward from the previous permit.

TSS limits consistent with the Secondary Treatment Regulation and the facility's TSS TMDL WLA have been carried forward from the previous permit.

The pH limits reflect current WQS in the receiving stream and have been carried forward from the previous permit.

EVALUATION OF THE EFFLUENT – DISINFECTION:
The TRC disinfection requirements have been carried forward from the previous permit. In addition to the minimum TRC contact monitoring requirements and minimum limit of 1.5 mg/L, E. coli monitoring at a frequency of 4/Month sampling during at least 1 month in each calendar year of the permit term has been imposed to demonstrate compliance with the monthly geometric mean limit and to ensure adequate disinfection. This E. coli limit and monitoring frequency has been imposed in accordance with Guidance Memo No. 14-2003 and revises the previous monitoring frequency of 2/Month. The previous permit language waiving some chlorine limits in the contact tank based upon bacteria sampling results has been replaced with standard requirements for the chlorine contact tank per Guidance Memo No. 14-2003. If an alternative to chlorination is utilized, E. coli monitoring at a frequency of 4/Month and an associated limit have been included at this reissuance. The E. coli limits are consistent with the TMDL WLA of 5.22×10^{10} cfu/yr and are protective of the current WQS for E. coli in the receiving stream.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, TN and TP baselines are being established for this facility to represent nutrient discharge allowances as of July 1, 2005. These baselines will be used as a limiting factor should the facility ever expand to a design flow of 0.040 MGD or greater. For municipal facilities, the baselines are based on the permitted design capacity of the facility. The permitted design capacity is defined as

Total N or P (lb/yr) = concentration (mg/L) x design flow (MGD) x 8.345 x 365 (days/yr)

where:

Design flow – as of July 1, 2005, the approved flow was 0.03 MGD
Concentration – the treatment provided as of July 1, 2005 was TN = 18.7 mg/L and TP = 2.5 mg/L (assumed concentrations based on secondary treatment facility)

TN = 18.7 mg/l x 0.03 MGD x 8.345 x 365 days/yr = 1,709 lb/yr
TP = 2.5 mg/l x 0.03 MGD x 8.345 x 365 days/yr = 228 lb/yr

The "permitted design capacity" or "permitted capacity" in terms of annual mass load of total nitrogen or total phosphorus discharged by this non-significant discharger is assumed to be that achieved at the current design flow using the currently installed technology.

The "permitted design capacity" or "permitted capacity" in terms of annual mass load of total nitrogen or total phosphorus discharged by this non-significant discharger is assumed to be that achieved at the current design flow using the currently installed technology.

Nonsignificant dischargers are subject to aggregate wasteload allocations for TN, TP, and Sediment under the TMDL for the Chesapeake Bay. In accordance with Guidance Memo No. 14-2011, monitoring of TN and TP is required for this permit term in order to verify the aggregate WLAs.

EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream were obtained from Ambient Monitoring Station No. BMTR000.93 on Mountain Run. A Flow Frequency Determination for the receiving stream is included in Appendix A. The "Wet Season" or "High Flow" months are January through May.

Stream Information			
90% Annual Temp (°C) =	18.8	90% pH (SU) =	8.1
90% Wet Temp (°C) =	14.0	10% pH (SU) =	7.4
Mean Hardness (mg/L) =	50		

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH values were obtained from the daily operational data submitted by the permittee. Since no new hardness data was available, the hardness value was carried forward from the previous fact sheet. Because no temperature data exist for this discharge, these values were set equal to data collected for Smith Creek at Ambient Monitoring Station Nos. 1BSMT028.00 and 1BSTM031.69.

Effluent Information			
90% Annual Temp (°C) =	22.3	90% pH (SU) =	8.2
90% Wet Temp (°C) =	17.4	10% pH (SU) =	7.1
Mean Hardness (mg/L) =	161		

WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N be based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- TRC: More stringent limits were determined to be necessary and have been included. This change is due to decreased stream receiving stream flows. This facility currently dechlorinates so no compliance schedule has been included to meet the more stringent limits.

- Ammonia-N: Less stringent Ammonia-N (Jun-Dec) were determined to be necessary and have been included. No Ammonia-N (Jan-May) limits were determined to be necessary and have been removed. These changes are due to the decreased effluent pH. Due to the availability of new effluent pH information, these changes comply with antibacksliding requirements.

WQC-WLA SPREADSHEET INPUT

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name: Camp Overlook STP
Receiving Stream: Mountai Run
Permit No.: VA0083305
Date: 11/13/2015
Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information			Effluent Information	
Mean Hardness (as CaCO3) =	50 mg/L	1Q10 (Annual) =	0.090 MGD	Annual	- 1Q10 Flow =	100 %	Mean Hardness (as CaCO3) =	161 mg/L
90% Temperature (Annual) =	18.8 deg C	7Q10 (Annual) =	0.099 MGD		- 7Q10 Flow =	100 %	90% Temp (Annual) =	22.3 deg C
90% Temperature (Wet season) =	14.0 deg C	30Q10 (Annual) =	0.12 MGD		- 30Q10 Flow =	100 %	90% Temp (Wet season) =	17.4 deg C
90% Maximum pH =	8.1 SU	1Q10 (Wet season) =	0.18 MGD	Wet Season	- 1Q10 Flow =	100 %	90% Maximum pH =	8.2 SU
10% Maximum pH =	7.4 SU	30Q10 (Wet season) =	0.24 MGD		- 30Q10 Flow =	100 %	10% Maximum pH =	7.1 SU
Tier Designation =	1	30Q5 =	0.14 MGD				Current Discharge Flow =	0.03 MGD
Public Water Supply (PWS) Y/N? =	N	Harmonic Mean =	0.41 MGD				Discharge Flow for Limit Analysis =	0.03 MGD
V(alley) or P(iedmont)? =	V							
Trout Present Y/N? =	N							
Early Life Stages Present Y/N? =	Y							

Footnotes:

1. All concentrations expressed as micrograms/ liter (ug/ l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
4. Hardness expressed as mg/ l CaCO3. Standards calculated using Hardness values in the range of 25-400 mg/ l CaCO3.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQSs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).
10. WLA = Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/ 3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/ 3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT

Facility Name: Camp Overlook STP
Permit No.: VA0083305
Receiving Stream: Mountai Run
Date: 11/13/2015

		WATER QUALITY CRITERIA 0.030 MGD Discharge Flow - Mix per "Mixer"				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS 0.030 MGD Discharge - Mix per "Mixer"		
		Aquatic Protection		Human Health		Aquatic Protection		Human
Toxic Parameter and Form	Carcinogen?	Acute	Chronic	Public Water Supplies	Other Surface Waters	Acute	Chronic	Health
Ammonia-N (Annual)	N	6.6E+00 mg/L	1.5E+00 mg/L	None	None	2.7E+01 mg/L	7.4E+00 mg/L	N/A
Ammonia-N (Wet Season)	N	6.8E+00 mg/L	2.1E+00 mg/L	None	None	4.7E+01 mg/L	1.9E+01 mg/L	N/A
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	7.6E-02 mg/L	4.7E-02 mg/L	N/A

PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. According to this guidance, STPs with a design flow ≤ 0.040 MGD are treated as if there are no toxic pollutants in their discharge unless there is actual evidence to indicate otherwise. This applies to all toxic pollutants with the exception of Ammonia and Total Residual Chlorine, which are evaluated in every STP discharge. Also, these smaller STPs are not required to monitor for any toxic pollutants unless there is reason to believe that such pollutants may be present.

Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh}, the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream background pollutant concentrations are assumed to be "0".

The steps used in evaluating available effluent data from STPs with design flows ≤ 0.040 MGD are as follows:

A. If all data are reported as "below detection" or < the required Quantification Level (QL) (or, for metals, in a form other than "dissolved"), then the data are not suitable for analysis and no further monitoring is required.

B. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

B.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.

B.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.

Parameter	CASRN	QL	Data	Source of Data	Data Eval
Ammonia-N (mg/L) (Annual)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	B.2
Ammonia-N (mg/L) (Wet Season)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	B.1
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	B.2

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

"Source of Data" codes:
a = default effluent concentration

"Data Evaluation" codes:
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

STAT.EXE RESULTS:

Ammonia-N (Jun-Dec)	**Ammonia-N (Jan-May)**	**TRC**
Chronic averaging period = 30 WLAa = 27 WLAc = 7.4 Q.L. = 0.2 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 14.9307586912807 Average Weekly Limit = 14.9307586912807 Average Monthly Limit = 14.9307586912807 The data are: 9	Chronic averaging period = 30 WLAa = 47 WLAc = 19 Q.L. = 0.2 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 9	Chronic averaging period = 4 WLAa = 0.076 WLAc = 0.047 Q.L. = 0.1 # samples/mo. = 30 # samples/wk. = 7 Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 6.87410148505019E-02 Average Weekly Limit = 4.19806331686497E-02 Average Monthly Limit = 3.40695017856511E-02 The data are: 20

APPENDIX C

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	Content and format as prescribed by the Guidance Memo No. 14-2003.
Part I.A.	**Effluent Limitations and Monitoring Requirements:** Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet. *Updates Part I.A.1 of the previous permit with the following:* • More stringent TRC limits were included. • The monitoring frequency for E. coli was changed from 2/Month each month to 4/Month for one month each calendar year. • Less stringent Ammonia-N (Jun-Dec) limits were included, and Ammonia-N (Jan-May) limits were removed. • Annual monitoring for TP, TKN, Nitrite-N + Nitrate-N, and TN was added per Guidance Memo No. 14-2011.
Part I.B.	**Additional Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements:** *Updates Part I.B of the previous permit with minor wording changes. Also, removes the language regarding a possible waiver of contact tank chlorine requirements based upon E. coli results, since E. coli monitoring has been reduced from 24 samples per year to 4 samples per year.* Required by Sewage Collection and Treatment (SCAT) Regulations, 9VAC25-790 and Water Quality Standards, 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.
Part I.C	**Effluent Limitations and Monitoring Requirements – Additional Instructions***: Updates Part I.C of the previous permit with minor wording changes. Also, the QL for $CBOD_5$ was changed from 5 mg/L to 2 mg/L and instructions on reporting nutrients have been included.* Authorized by VPDES Permit Regulation 9 VAC25-31-190 J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.
Part I.D.1	**95% Capacity Reopener:** *Updates Part I.D.1 of the previous permit with minor wording changes.* Required by VPDES Permit Regulation 9VAC25-31-200 B 4 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) permits.
Part I.D.2	**Indirect Dischargers:** *Identical to Part I.D.2 of the previous permit.* Required by VPDES Permit Regulation 9VAC25-31-200.B.1 and B.2 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) that receive waste from someone other than the owner of the treatment works.
Part I.D.3	**Materials Handling/Storage:** *Updates Part I.D.3 of the previous permit with minor wording changes.* 9VAC25-31-50.A prohibits the discharge of any waste into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

Part I.D.4	**O&M Manual Requirement:** *Updates Part I.D.4 of the previous permit with changes to what is required to be included in the O&M Manual.* Required by Code of Virginia Section 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.D.5	**CTC/CTO Requirement:** *Identical to Part I.D.5 of the previous permit.* Required by Code of Virginia 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.D.6	**SMP Requirement:** *Updates Part I.D.6 of the previous permit with minor wording changes.* VPDES Permit Regulation 9VAC25-31-100.Q, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32-10 *et seq.*)
Part I.D.7	**Licensed Operator Requirement:** *Updates Part I.D.7 of the previous permit with minor wording changes.* The VPDES Permit Regulation 9VAC25-31-200.C, the Code of Virginia 54.1-2300 et seq., and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.), require licensure of operators. A class IV license is indicated for this facility.
Part I.D.8	**Reliability Class:** *Identical to Part I.D.8 of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790 for all municipal facilities.
Part I.D.9	**Treatment Works Closure Plan**. *Updates Part I.D.9 of the previous permit with minor wording changes*. This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.
Part I.D.10	**Reopeners:** a. *Identical to Part I.D.10.a of the previous permit with minor wording changes:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act. b. *Updates Part I.D.10.b of the previous permit with minor wording changes:* 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards. c. *Identical to Part I.D.10.c of the previous permit with minor wording changes:* Required by the VPDES Permit Regulation 9VAC25-31-220.C, for all permits issued to treatment works treating domestic sewage.
Part II	**Conditions Applicable to All VPDES Permits:** *Updates Part II of the previous permit.* VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

Deletions: None